



[54] Title of the Utility Model : Surface Light Source Device

[11] Utility Model Non-Examined Publication No. : S58-138903

[43] Published : September 19, 1983

[21] Application No. : S57-35405

5 [22] Filing Date : March 12, 1982

[72] Inventor : Hiroaki IDENO

[71] Applicant : Mitsubishi Electric Co., Ltd.

[51] Int.Cl. : G02B 5/14, F21V 5/00, 13/04

[Claims]

- 10 1. A surface light source device comprising:
a transparent plate having an insertion hole;
a light source buried in the insertion hole; and
a light scattering treatment surface formed on the plate, the light
scattering treatment surface emitting light, that is generated by the light
15 source and propagates through the transparent plate, outside from the
plate, and the light scattering treatment surface and an area in the vicinity
of the surface acting as a light emitting surface,
characterized in that,
a side surface of the transparent plate is formed to have a shape,
20 wherein,
at a side surface area of the transparent plate, where an angle
formed between a normal and a line connecting the light source and the
side surface is larger than a critical angle of a total reflection of a
material of the plate, when the line does not cross the light scattering
25 treatment surface.

2. The surface light source device of claim 1, wherein at least a
portion of a projected figure along a normal direction of the transparent
plate is expressed by an exponential curve represented by an equation
30 $r = \exp(\theta \cdot \tan \theta_1)$ or a curve analogous to the exponential curve,
where,

θ_1 is an angle equal to or larger than the critical angle of a total
reflection of the material, while smaller than a right angle,

r is a distance from the light source as an origin, and
 θ is a phase angle against a normalized line.

[Brief Description of the Drawings]

- 5 Fig. 1 is a plan view of the prior art surface light source device.
Fig. 2 is a side view of Fig. 1.
Figs. 3 and 4 show plan views of other prior art surface light source device.
Fig. 5 is a side view of Fig. 4.
10 Fig. 6 is a plan view of an example of the present utility model.
Fig. 7 is a side view of Fig. 6.

[Reference Numerals]

1. transparent plate
15 2. insertion hole
3. incandescent lamp
4. filament
5. side surface
5a. curved portion
20 6. light scattering treatment surface

図 1

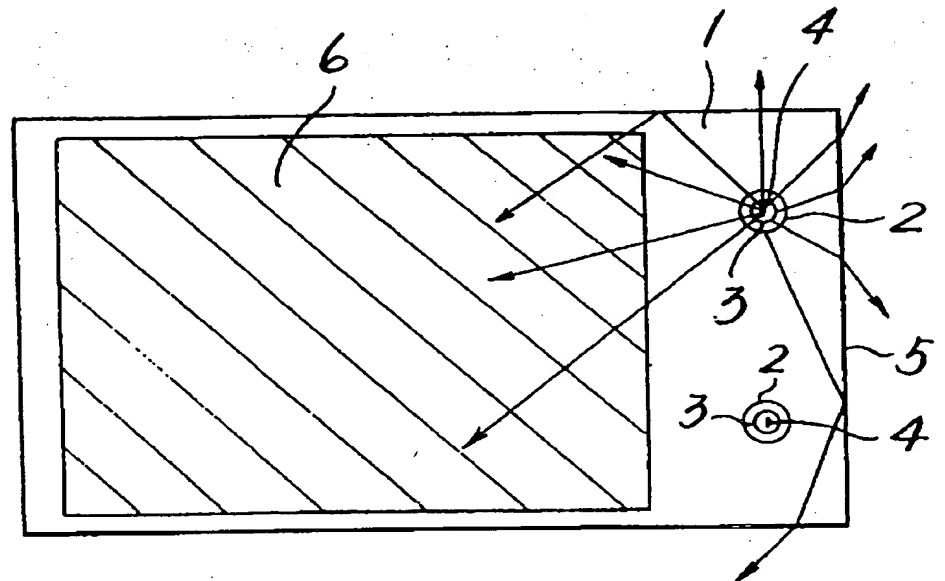
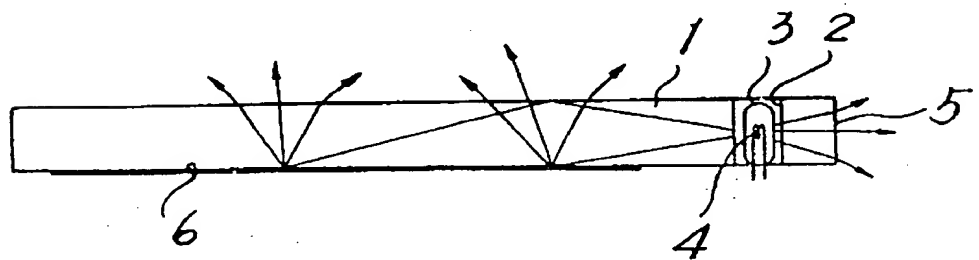


図 2



30

実開 58 138903

代理人 葛野 信一

図 3

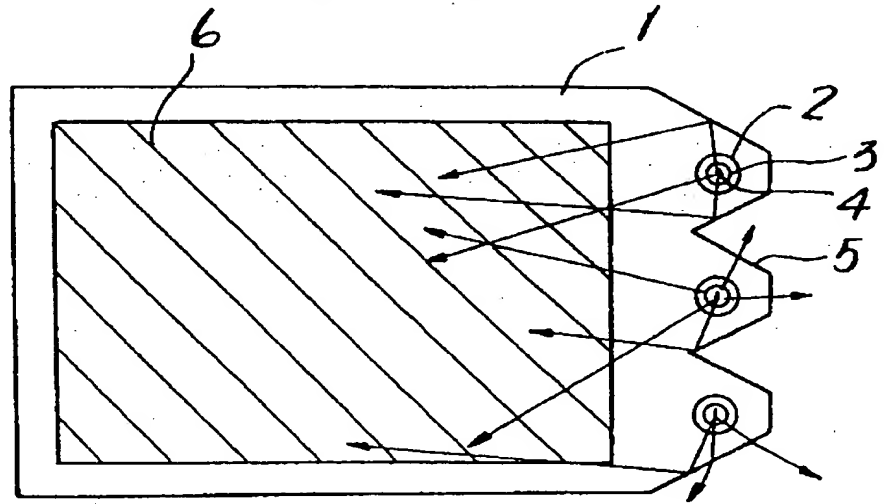


図 4

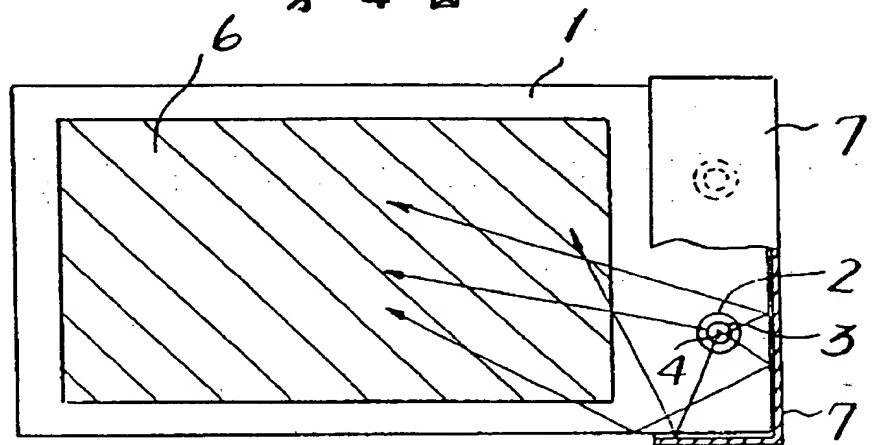
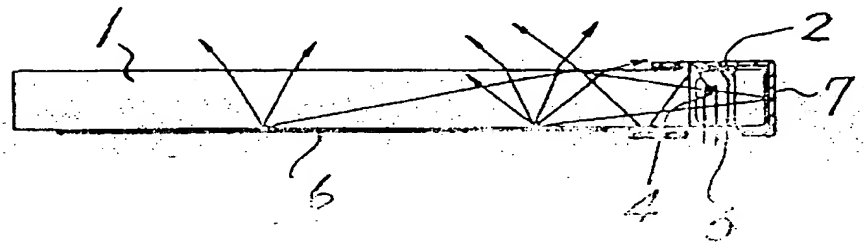


図 5



31

特開 55-1003

代理人 葛野 信一

図 6

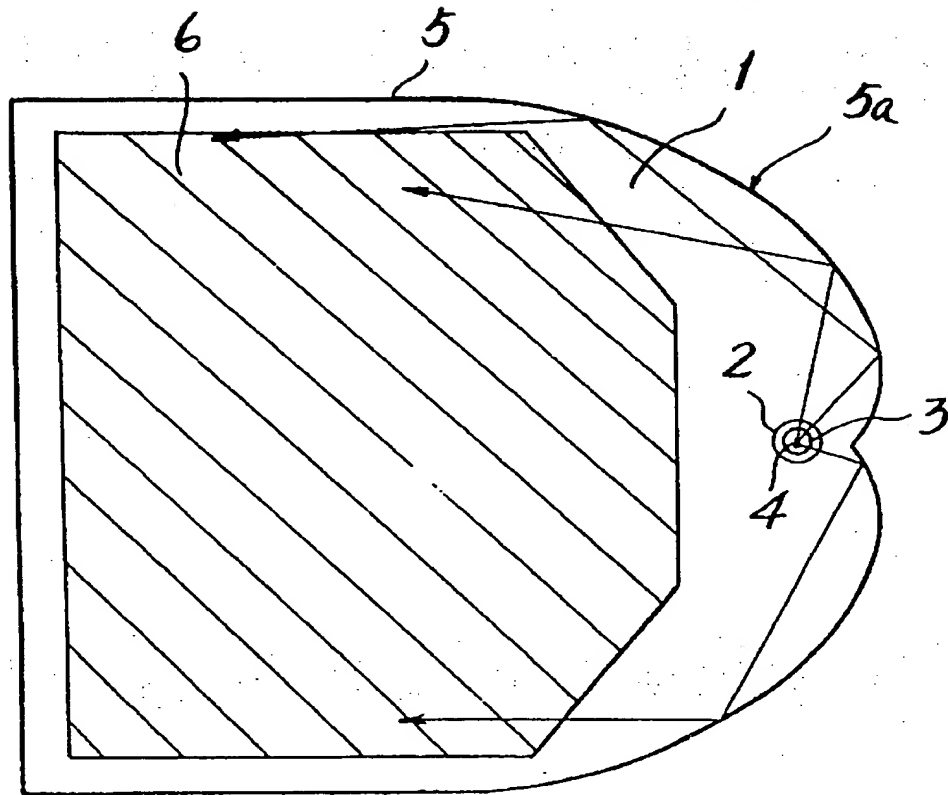
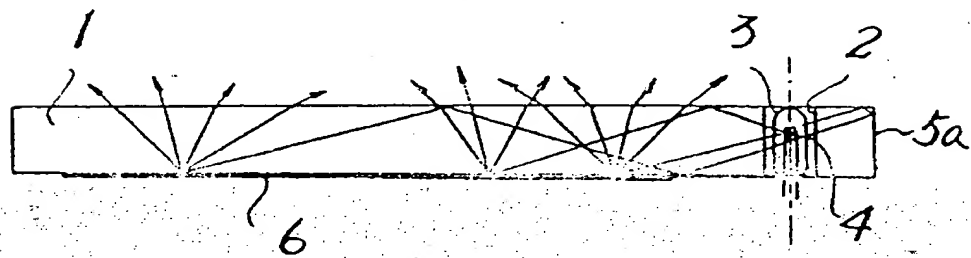


図 7



32

実開58 138903

代理人 葛野 信一